



DEPARTMENT OF HEALTH AND ENVIRONMENT

Policy Memorandum 87-6
April 1987

A handwritten signature in dark ink, appearing to read "Gyula F. Kovach".

FROM: Gyula F. Kovach, P.E.
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SUBJECT: CONSTRUCTION ALTERNATIVES TO CONVENTIONAL SANITARY SEWER SYSTEMS

PURPOSE:

To establish the Bureau of Water Protection's policy regarding approval of nonconventional alternatives to standard gravity sanitary sewage collection systems. This policy explains when the Bureau of Water Protection will consider nonconventional sanitary sewer collection systems, and what conditions must be satisfied before nonconventional sanitary sewer systems will be approved.

BACKGROUND:

Historically, sanitary sewage service in Kansas has been provided through construction of eight-inch minimum diameter gravity sewer lines with pump stations provided as necessary. Increased interest in alternative sewer collection systems is being expressed in Kansas as an alternative to the traditional eight-inch gravity line approach to sanitary sewage service. The Kansas Department of Health & Environment's Minimum Standards of Design for Water Pollution Control Facilities, adopted pursuant to K.S.A. 65-171h, address pressure sewer collection systems briefly in Chapter 6, Sanitary Sewer Design. The minimum standards state that "Pressure sewer collection systems may be utilized where adequate justification is given for their use. The entity with responsibility for maintaining the system must demonstrate it has the capability and manpower to operate and maintain the system."

Conventional sanitary sewer design, due to its proven technology, simplicity, energy efficiency, and ease of operation and maintenance, is the accepted method of approach for providing sanitary sewage service to Kansas communities and new developments. However, the Department recognizes there are unusual circumstances which may require consideration of alternative technology such as septic tank effluent pump systems, pressure sewer systems, variable grade sewers, and use of grinder pumps as alternatives to conventional gravity sewer systems. The circumstances include industrial applications; end line usage; post sewer construction basement service; unusually deep basement service; low population density; poor soil conditions; high groundwater elevation; and, rocky or hilly terrain. Initial cost savings realized with installation of alternative sewer systems must be compared with additional operation and replacement costs inherent

with the more sophisticated, maintenance-intensive alternative systems, and the capability of the owner to operate and maintain the system must also be demonstrated. KDHE's review will encompass these areas and approval will not be provided unless the Department is assured the application of alternative technology is appropriate to the requested sewerage service.

POLICY:

Bureau of Water Protection approval for alternative sewer systems will be considered only when the present worth cost difference of conventional sewers and nonconventional sewers is significant, and if the responsible entity can demonstrate it has the financial, legal and organizational capability and manpower to operate and maintain the system. The entire nonconventional system shall be publicly owned and operated with appropriate right-of-ways for maintenance, repair and replacement.

The present worth cost comparison must include capital cost provisions for spare pumps and parts, system failure detection, maintenance costs, standby equipment costs, right-of-way costs, and other costs as appropriate. For the purposes of this comparison, the design life of conventional sanitary sewer systems shall be considered 50 years, the design life of conventional pump stations shall be considered 20 years, while the design life of either grinder pumps or individual household pumping units shall not exceed 10 years. The sewage piping for the individual household units may also have a lifetime of 50 years.

Information provided to KDHE to address the capability of the responsible entity to operate and maintain the system shall include provisions for routine and emergency maintenance; right of access for repairs and maintenance; an assessment of man-hour requirements and availability; an assessment of standby equipment needs; an assessment of emergency operation including power failure, component malfunctions and emergency operating procedures; and a proposed method of sewer charges to address these items. A statement by the responsible public entity requesting approval of the alternative technology must be submitted indicating it is committed to providing the increased attention to maintenance necessary to assure a continuously operating system and to maintaining a sufficient spare parts inventory. Further proof of public ownership for the entire nonconventional system shall also be submitted with all other technical and nontechnical information. The contractor shall be required to furnish a two-year cash performance bond to the owner for 100% of the system cost in the event of system failure. The owner must submit assurances a conventional system will be constructed within one year of system failure, and must provide KDHE a performance certification at the end of the two-year period.